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2.6 Energy security in the Barents Region

A focus on societal perspectives

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This chapter discusses the issue of energy security within the broader framework of societal security in the Barents Region. As a 'master resource' (Strauss, Rupp and Love 2013, 11), energy penetrates and crosscuts all aspects of the broadly understood human security: economic, food, health, environmental, personal, community and political security dimensions and concerns (cf. UNDP 1994). However, societal aspects of energy security remain largely understudied and are often overlooked in energy-related debates and decision-making, including in the context of the Barents Region.

1 Definition: the many faces of energy security

There is a wealth of literature discussing the definition of energy security, although the issue of energy remained absent from the 2004 UNDP Report concerning human security. Today, most debates regarding energy security take place through terms which

> denote unimpeded access or no planned interruptions to sources of energy, not relying on a limited number of energy sources, not being tied to a particular geographic region for energy sources, abundant energy resources, an energy supply which can withstand external shocks, and/or some form of energy self-sufficiency.
>
> (Chester 2010, 887)

Traditionally, much of this discussion has revolved around the ways in which these themes play out on the state level in the context of securing 'the uninterrupted availability of energy sources at an affordable price' (IEA 2017). However, along with expanding understandings of 'security' in the broader field of security studies, questions such as security for whom; security for what values; and security from what threat(s) have also entered the stages of energy-related security theorising (cf. Cherp and Jewell 2014).

Indeed, what needs to be acknowledged is the instrumental role that energy has in securing other functions and goals (Scrase and Ockwell 2010): it is not only fundamental to maintaining all political, economic and societal life

(Aalto and Westphal 2007, 5; also Prontera 2009, 9), but also a prerequisite to development of any kind, and essential for everyday activities, quality of life and human survival (Rüdiger 2008, vii; Hemsath 2010, 8; WCED 1987, 141). Echoing the principles of the human security approach, the General Assembly in its 2030 Agenda for Sustainable Development also emphasised the interplay between sustainable development and energy as it envisages a 'world free of poverty, hunger, disease and want … free of fear and violence…with equitable and universal access to quality education, health care and social protection… and where there is universal access to affordable, reliable and sustainable energy' (UN General Assembly 2015). Thus, energy is a core component of human development and wellbeing and cannot be relegated to the spheres of high politics and market transactions nor to the domains of technology and science (cf. Lempinen 2017; Strauss, Rupp and Love 2013). Instead, the all-encompassing nature of energy (security) concerns only underline the importance of engaging lay voices and non-specialist perspectives in the processes of defining what energy security entails (cf. Ciutâ 2010, 125).

In an attempt to accommodate the foundational importance that energy has for states, societies and communities, some additional dimensions or aspects of energy security have been suggested. Among the most institutionalised definitions is the model of the 'four A's' (cf. e.g. Kruyt et al. 2009), which adds the dimensions of *accessibility* and *acceptability* to the normally included availability and affordability. Out of these, acceptability refers to the awareness over the environmental and societal externalities inevitably associated with all and any energy solutions: meanwhile, accessibility points towards acknowledging the political, economic and technological barriers that might hinder (cost-effective) access to existing energy resources (Fischhendler and Nathan 2014, 153). Bradshaw's (2012) understanding of contemporary energy security is closely related with the four A's and emphasises the resource geographic, institutional, financial and ecological dimensions that together constitute the energy security concern. Out of these, the three former integrate the components of availability, affordability and accessibility, while the latter explicitly adds considerations of ecological and environmental acceptability to the list.

The emphases on the societal and environmental aspects and impacts associated with the energy concern have not emerged in a societal void. There has been a 'growing criticism of cultural ignorance with which many energy implementation projects are handled' (Bastholm and Henning 2014, 1; see also Strauss 2011) and associated concerns over societal acceptance of energy production have received increasing public attention (Mitchell et al. 2011). In a similar manner, the question of accessibility – more often than not conceptualised in state-centric terms – has also become viewed through a more societally attuned lens. Borrowing from the emerging literature on energy justice, questions of access both to energy resources themselves as well as to the benefits derived from their extraction have gradually become included in the domains of energy security debates (cf. Fuller and MacCauley 2016).

As if this conceptual complexity were not enough, the task of defining energy security is only further complicated by the diversity of energy itself: indeed, what 'energy' actually refers to is seldom explicated or explained (cf. Littlefield 2013, 779; Rupp 2013). In order to engage in any meaningful discussion about the energy security situation in the Barents Region, it is therefore necessary to acknowledge the diversity of energy in terms of different energy sources ranging from renewables to non-renewables as well as the specific concerns associated with energy production, transportation and consumption.

Together, the above remarks highlight the inevitably contextual nature of the 'polysemic' (Chester 2010, 887) notion of energy security. Since 'nothing exists that is not energy, or affected by energy' (Ciutâ 2010, 125), there is a risk that without proper definition and an explicit context, the concept of energy security becomes 'empty' in a sense that it means the '*security of everything* […] *everywhere* […] *against everything*' (ibid., 136; italics in original). In this chapter, the required contextualisation is done within the geographical context of the Barents as well as through a focus on the societal aspects that energy security might entail for the peoples, communities and societies within the region.

2 Energy security concerns in the Barents Region

As a part of the broader Arctic region, the Barents has become to be defined mainly in terms of its estimated massive energy endowments and the role they are expected to have in feeding the 'resource-starved world' (Holm 2015, xv). An estimated fourth of the world's remaining hydrocarbon resources are located in the Arctic region, and most of them are expected to be found from the high seas surrounding the Barents (USGS 2009). Indeed, while marine areas are not included in the official definition of the Barents Region, in the specific context of energy they are included in the regional energyscape (cf. Lempinen 2017, 76).

Much like in the context of the broader Arctic, the word 'energy' has become synonymous with the production of oil and gas exports for global markets, and this is true in the Barents Region, which has a long history as a resource exporter (cf. Tennberg et al. 2012, 15–18). The regional energy landscape is, however, significantly more diverse than oil and gas production and transportation. Parts of the region are wealthy in terms of their renewable energy endowments: energy sources such as wind, hydro, tidal, wave, solar and biomass are utilised in and around the region to a varying degree, as is peat energy (cf. Lempinen 2017, 91; Banul 2012). In effect, there are also major differences between the energy supply structures in the different parts of the Barents Region. In general, fossil fuels constitute a major energy source in all Barents parts but only dominate in the energy mix of the Russian parts. In Sweden and Norway, hydroelectric energy represents the primary energy source (CENTEK AB 2010). In addition, renewable fuels (biomass and urban

waste) are important energy sources in Sweden but not in the Norwegian or Russian parts. The significance of nuclear energy and related concerns cannot be downplayed, either: the Murmansk oblast relies heavily on nuclear energy, and Finland has commissioned the construction of a new nuclear power plant in the municipality of Pyhäjoki.

What this production-oriented storyline to a great extent overlooks is that the Barents Region is also a home to around five million local and indigenous inhabitants (BEAC 2016). As in many other parts of the Arctic, long distances and cold climate place some of the residents of the Barents Region amongst the highest per capita energy consumers worldwide (Rasmussen and Roto 2011, 151). The extensive presence of energy-intensive heavy industries only further contributes to the high demand of energy in the region (Glomsrød and Aslaksen 2006, 12). As a result, regional concerns associated with energy efficiency and saving are also acutely important in the overall energy security puzzle of the Barents Region (cf. Hirvaskari and Gerashchenko 2015; also Hemsath 2010, 11, 24).

3 Assessing regional energy security

Against this background, assessing the energy security situation in the Barents Region must equally include the diversity of the Barents as a geographical, political and sociocultural region, as well as the diversity of energy in its own right. Considering that the dimensions and definitions of energy security are still debated, this assessment adopts an approach that combines two of the definitions mentioned above. The definitions of Kruyt et al. (2009) and Bradshaw (2012) deal with energy security in the region through the integrated and overlapping components of availability; affordability; environmental aspects; and acceptability of energy-related decisions and measures in the region. In addition, energy security concerns specifically relating to indigenous people within the region are briefly addressed in a separate, dedicated sub-section.

3.1 Availability

While the concerns of energy availability in the context of energy security have traditionally been conceptualised in state level terms, the importance of reliable everyday energy supplies cannot be underestimated at the level of societies, communities and everyday life. The everyday activities and quality of life in the Barents Region are heavily dependent on – or even 'dictated by' (Hemsath 2010, 8) – the reliable and uninterrupted availability of heat, fuel and electricity. However, this reliability cannot be taken for granted in all parts of the region. In some parts of the Barents, especially in Russia, the unreliable and out-of-date energy infrastructure frequently contributes to delivery disruptions (cf. Lempinen 2017, 92), and the otherwise reliable transmission systems in other parts of the Barents remain vulnerable to unexpected events such as natural disasters (cf. Tennberg and Vola 2014).

As such, both the dependence on long distance transports as well as the overdependence on single energy source pose threats for the availability of energy supplies (Hemsath 2010, 24). However, limitations related to the regional energy infrastructure, as well as the material qualities of different energy sources that the existing energy systems have been designed to utilise, make the diversification of energy supplies in the region a burdensome task (cf. ibid., 9; Lähde 2015; Bridge 2011). While oil and gas still remain the dominant sources of energy, the use of renewable energy is increasingly solicited at the local, national and international levels. In fact, the Barents Region is rich in renewable energy resources, especially its Nordic part, where energy systems have a long tradition of using efficient water, bio-energy, wind and geothermal energy (NORDEN 2010, 11). The Nordic states also have significant potential to increase their production and use of renewable energy, while in Russia, the government has also begun to encourage work on energy efficiency and the development of renewable energy sources since the adoption of the Federal Law in 2009 'On energy saving and energy efficiency improvements'.

However, the required transition from fossil fuel to renewable energy has progressed much further in the Nordic countries than in the Russian parts of the Barents (CENTEK AB 2010). Despite its potential, several barriers still prevents most cities and municipalities in Russia from increasing their energy efficiency and use of renewables. The low price for fossil fuels (CENTEK AB 2010) as well as the lack of awareness, capacities and skills in Russian municipalities in regards to the possibilities and benefits of energy efficiency and renewables constitute major hurdles limiting the development of renewable (Barents Euro-Arctic Energy Working Group 2011). Processes related to the planning and approval of projects also generally limit opportunities for development in the area of renewables. This is notably the case in the area of wind power development projects (NORDEN 2010, 12), which nevertheless continue to flourish in the Nordic countries. Ultimately, increasing the availability of renewable energy in the Barents Region therefore requires new technologies, investments, and policy solutions.

3.2 Affordability

Despite designations of the broader Arctic as the world's new energy province, parts of the Arctic Barents Region are still plagued by energy poverty, despite their tremendous energy wealth. While definitions of energy poverty vary, in its most classical articulations it is defined as a state where more than ten percent of a person's or a household's income is spent on energy and fuel (cf. Boardman 1991). In more qualitative terms, energy poverty has been briefly defined as inadequate access, affordability, reliability and safety of energy resources for consumption (cf. Bazillian et al. 2014, 219–220).

Regardless of the definition adopted, the issue of energy poverty remains a timely concern also for the Barents Region and some of its residents and communities. While in many areas and for many communities energy-related

costs do not play a defining role on the everyday level, some findings from the broader Arctic indicate that especially in remote rural communities the high costs of transportation fuels have an impact on subsistence lifestyles and the viability of communities that depend on them (Hemsath 2010). Despite the advantages created by motorised transportation, the dependence of most rural and indigenous inhabitants in the Arctic communities on available and affordable fuel to hunt, fish and gather reindeer undermine their subsistence livelihoods and their capacity to meet their dietary and cultural needs.

However, only considering the theme of affordability in the context of rural and/or indigenous communities is not adequate in covering the whole spectrum of issues related to the economic aspect of regional energy security. The affordability component of energy security intertwines the explicit issue of energy into a broader societal whole. Besides the potential of uncontrollable fluctuations in energy commodity pricing (Hemsath 2010, 24), changes in micro- and macroeconomic situations in the region influence the ability of individuals and households to afford their energy needs (for economic conditions in the Barents Region c.f. Glomsrød and Aslaksen 2008, 11–26). Amongst other things, changes in employment situation, health status or family relations, reforms or cuts in national social security schemes and growing societal inequality can dramatically influence the affordability situation at a household level in otherwise energy affluent communities.

3.3 Environmental aspects

Environmental considerations related to energy production, transportation, and consumption also constitute a large component of the overall energy security situation in the Barents Region from the societal perspective. Many of the 'environmental hot spots' monitored under the Barents cooperation are linked either to the heat and power generation sector, or to handling oil spills and oil or coal mining waste (cf. BEAC 2017, see also chapter 1 on environmental security for further details). In addition to the environmental and climate impacts of energy production, heat and power generation themselves, the risks of spills and leaks associated with the processes of production and transportation pose environment-related energy security threats and challenges. Potential oil spills – both on- and offshore – could have detrimental impacts on the lives and livelihoods within an environmentally sensitive region, such as the Barents (PAME 2009, 136–138; Hemsath 2010, 20–21).

It is important to consider, however, that there is no 'problem-free' means of producing energy that comes without environmental externalities of some kind. Additionally, renewable energy solutions are accompanied by a range of issues to consider, depending equally on the energy source in question as well as the siting of the development project. However, the environmental aspects and impacts of renewable energy alternatives continue to be underestimated and downplayed (for a brief summary see Fischhendler et al. 2015, 198). While recent discussions revolve around wind power developments (Dai et al.

2015, 911), the development of hydropower has also been and continues to be a source of local environmental conflict in some parts of the region (cf. e.g. Strauss 2011, Suopajärvi 2001).

In addition, nuclear energy – a prominent impetus for political cooperation in the Barents Region (cf. BEAC 1993) – continues to pose its own, fundamental concerns in the region. As the existing nuclear reactors in the Kola Peninsula are running on overtime (cf. AMAP 2015, 67) and the construction of a new nuclear power plant has begun in the Finnish Barents (Fennovoima 2017), nuclear energy production in the region will continue for several decades to come. Alongside the existing risks associated with nuclear power plants, potential accidents from floating nuclear power plants or nuclear powered icebreakers, radioactive waste dumped into the Barents and Kara seas during the Soviet times (AMAP 2015, 5–7, 67) as well as issues related to the handling and storage of nuclear waste, continue to pose radiation safety concerns (ibid., 21–33). Furthermore, incidents or accidents in nuclear power plants located outside the geographic borders of the Barents can potentially still have repercussions within the region (see Chapter 1 on environmental security).

One crucial aspect relates to the dominant role of oil and gas production to global climate concerns. While climate change remains to a great extent absent from northern energy-related debates (cf. Norgaard 2011; Lempinen 2017, 170–171; Tynkkynen and Tynkkynen, forthcoming), the hydrocarbon-dependent global energy system is the single biggest source of anthropogenic greenhouse gas emissions (Bradshaw 2010, 275). At the same time, climate change 'is the most pervasive and powerful driver of change' (Arctic Council 2016, viii) in the circumpolar north, including the Barents Region, within which fossil fuel based energy is equally produced and consumed in large quantities. In this context, the climate and environmental impacts of regional household energy consumption exemplify a case where the northern residents are not only the referent object of energy security, but whose everyday choices and practices also place them in the position of global energy (in)security providers.

3.4 Acceptability

The acceptability dimension of energy security is heavily involved in weighing the potential gains of energy-related decisions and measures against the harm that they may cause. While much of the discussion over energy activities and their impacts in the broader Arctic revolve around the special challenges faced by the indigenous populations in the region, the position of local, non-indigenous populations as well as the impacts to communities and societies residing outside the Arctic region also contribute to overall concerns (cf. Lempinen 2017, 123–127).

Reports and assessments dealing with the broader Arctic have identified the pervasive and profound ways in which Arctic energy projects penetrate and impact all aspects of northern societies. The impacts of northern energy

activities range from macro and microeconomic effects to influencing demography, health, education and training. In addition, they have the potential to impact governance, cultural integrity, contact with nature, and the subsequent interactive effects arising from their intersections (AMAP 2010). As a consequence, no community or society in the Barents Region is immune to the influence of regional energy-related developments.

What constitutes an impact, however, is not as straightforward as it might initially appear. The notion of impact is perspectival in the sense that experienced impacts might not directly reflect the (f)actual and measurable outcomes observed. Instead, the perceptions and impressions of the affected individuals and communities are always formed in the interplay of their personal histories and 'real-world' developments (Del Río and Burguillo 2008, 1328–1329; Whitton et al. 2015). Furthermore, communities are both different between each other as well as internally heterogeneous. This means that very different views about the energy (security) situation as well as about the ongoing developments might exist both between different communities as well as within one community.

From the perspective of acceptability, the discussion above relates directly to the ethics and morals of the allocation of costs and benefits of energy-related developments in the region (cf. MacCauley et al. 2016) as well as to the issue of local access to the resources produced in the region for the needs of the global markets. Historically, the positive and negative impacts of Arctic energy projects have been unevenly distributed amongst affected communities, between the project operators, and the producing regions (cf. Hemsath 2010, 23; Glomsrød and Aslaksen 2006, 16; AMAP 2010). The acceptability of energy-related developments also converges with broader societal security through the conflict potential that is embedded in any energy-related project relating to elements of experienced injustice and inequality. If the social license to operate (cf. e.g. Gehman, Lefsrud and Fast 2017, Hall 2014) is not secured from the impacted communities, this potential, in turn, can actualise in the form of social unrest both in localised contexts within the region as well as anywhere within networks of global society (Hemsath 2010, 24; Mitchell et al. 2001).

3.5 Energy security and indigenous peoples of the Barents Region

Although the impacts of energy production are broad and play a role in the lives of all inhabitants of the region, indigenous peoples have disproportionately suffered from the effects of energy development and production of energy resources. In addition, the production of coal and uranium mining, oil and gas extraction, nuclear power, hydropower and wind development are bountiful in the Barents Region, and indigenous peoples are among those who benefit least from these developments. As discussed in the chapter concerning community security, indigenous peoples have historically been deprived of access to their traditional land and resources, and despite current progress still suffer

from the consequences of colonisation and assimilation policies. Land and territories where indigenous communities live are often resource rich and serve as the location from which companies extract resources.

Today, the development of energy projects from resources on indigenous lands continues to threaten their traditional livelihoods. In the Nordic countries, the Sami way of life, especially in relation to reindeer husbandry, is threatened significantly by competing land uses, often promoted by the governments themselves through natural resource extraction or renewable energy projects (Anaya 2011, 15–21). In Finland for instance, logging activities continue to pose a threat to the Sami livelihoods, in particular to reindeer herding activities. Specifically, this is due to the lack of consideration for the protection of the rights of the Sami people to land and natural resources (Anaya 2011, para. 59). This situation is also comparable to the case of the Sami people living in Norway and Sweden.

Although the recognition of the rights of the Sami people in Norway has improved since the adoption of the Consultation Agreement and the Finnmark Act in 2005, the Sami Parliament of Norway continues to indicate that the Sami people still face a lack of involvement and authority in the decision-making processes affecting their lands and resources. In this regard, the Committee on Economic, Social and Cultural Rights (CESCR 2013) expressed its concerns that Norway's 'measures for the preservation and promotion of Sami culture do not sufficiently guarantee the right of the Sami people to enjoy their traditional means of livelihood (art. 15)' and recommended that Norway should 'take steps to preserve and promote the traditional means of livelihood of the Sami people, such as reindeer-grazing and fishing'. In addition, Sami representatives have also suggested that the implementation of the 2009 Mineral Act 'remains particularly challenging in relation to energy development projects and reindeer husbandry', a statement also supported by the UN General Rapporteur on the rights of indigenous peoples who concluded in 2016 that the 2009 Mineral Act 'does not meet international standards' (Tauli-Corpuz 2016, para. 20–29). In particular, what has been held problematic 'is the lack of specific consultation or consent requirements with respect to the particular Sami communities that will be directly affected by the proposed measures' as well as 'the absence of provisions for benefit-sharing with Sami communities when mines are located on traditional Sami lands' (Tauli-Corpuz 2016, para. 29–31). As a result, the Rapporteur indicated in her conclusion that 'the Minerals Act raises doubts about the State's ability to respect, protect and fulfill human rights in the context of extractive activities' in Norway (para. 32).

The situation of the Sami people in Sweden has also raised many issues. The current Mining Act does not contain any provisions to accommodate any special rights relevant to Sami people, and existing mining policies do not appear to be sufficient in protecting Sami interests and rights over lands affected by mining activities. In her 2016 report, Tauli-Corpuz also concluded that the Swedish regulatory framework does not adequately recognise and

protect Sami rights in accordance with international human rights standards (para. 48). In particular, the fact that the environmental code does not require any social impact assessment in order for an exploitation concession to be granted and does not preclude mining activities if negative effects on Sami culture and ways of life are found is considered problematic. Furthermore, the mineral ordinance stipulates that the Sami Parliament has the right to be informed and to express an opinion for exploitation permits, but the regulation does not entail a right to withhold consent to the granting of the permit. This is in contravention to the duty of the state to consult indigenous representatives in order to obtain their consent, as enshrined under the UN Declaration on the Rights of Indigenous Peoples.

There is also much controversy in the Nordic countries regarding proposed wind energy projects and conflicts between Sami communities, governments and industry. Wind energy projects, which are increasing in the northern parts of the Nordic countries to meet renewable energy targets in response to global warming, can cause significant impacts on reindeer husbandry. For instance, the construction of wind turbines can affect the migration patterns of reindeer (Skarin et al. 2015) and consequently undermine the traditional livelihoods of Sami communities. In his 2011 report, the Special Rapporteur on the Rights of Indigenous Peoples Anaya also raised concerns against the impact of sustainable energy projects, specifically a potential windmill construction boom in northern Norway, which severely affect reindeer calving grounds (Anaya 2011,17). As a result, indigenous populations not only face the impacts of climate change (ILO 2016; Galloway McLean et al. 2009), but also must endure the externalities associated with mitigation solutions. This situates their communities as experiencing greater risk, considering their cultural rights and livelihoods are also at stake (see also chapter on community security). This situation has triggered a number of court cases both in Sweden and Norway between wind energy companies and Sami reindeer herders (NRK 2016; Umeå Court 2015, 2016), which question the compatibility of renewable energy projects and the human rights of the Sami people.

In Russia, Nenets communities face negative economic, social and cultural impacts from the increasing appropriation and reduction of traditional lands used for husbandry, sacred sites and fishing grounds, as a result of oil and gas development projects. According to the BEAC Working Group for Indigenous Peoples, national and international corporations establish activities in areas inhabited by indigenous peoples without involving them in development strategies or planning. In addition, regional administrations often prioritise the development of central areas, at the expense of indigenous communities who live in remote parts of the region (Barents Euro-Arctic Energy Working Group 2017, 12). In this regard, the capacity of energy development projects to meet local communities' needs remains in question. Simultaneously, local communities continue to suffer from a lack of affordable energy and endure the negative effects of its production.

Thus, the survival of indigenous communities relies heavily upon the capacity of the government to balance competing interests in the use of land and territories. However, while the protection of the rights of indigenous peoples' has made progress in the Barents in recent years, it does not appear to be sufficient in ensuring the protection of their rights in accordance with international standards. As a result, there is an urgent need to ensure that the production and use of energy not only meets the needs of indigenous communities but also does not compromise their survival and distinctive livelihoods.

4 Conclusion and recommendations

Energy security is a 'highly context dependent' concept (Kruyt et al. 2009, 2166) whose operationalisation requires a detailed and precise definition. As such, defining energy security within the Barents Region depends not only the energy resource in question but also from the interests, aspirations and experiences of the individuals, families and communities that are affected by or dependent on the energy-related events, decisions and developments. The complexity and diversity of this definition is seldom fully accounted for in the processes of planning and decision-making in the context of energy in the Barents Region. In turn, this has direct implications on the energy security situation as it is experienced by communities – both indigenous and non-indigenous – within the culturally and politically diverse region.

In order to better account for the societal dimensions of energy security, the diversity within environmental externalities associated with energy production need to be acknowledged and addressed. In addition, to better account for the social impacts of energy extraction and infrastructure projects, the manner in which social impact assessments of energy extraction and infrastructure projects – both renewable and non-renewable – are implemented should be improved. In the broader context of extractive industries in the Barents Region, it has been observed that social impact assessments are normally conducted as one-time pre-project assessments in general (cf. Suopajärvi 2015, Kokko et al. 2013). This is done rather than to use them as tools for actually 'analyzing, monitoring and managing the social consequences of development' (Vanclay 2003, 6) throughout the different phases of the energy project. Conducted as they are now, social impact assessments reveal little about the actual impacts of projects on the communities and living environments of the region, as they currently map only the *expectations* that the consulted individuals and communities attach to the expected development project (cf. Suopajärvi 2015). Furthermore, efforts should be made to ensure a more balanced representation within consulted communities (cf. Suopajärvi 2013; Strauss 2011, 51).

In the context of energy production, there is also a need to improve renewable sources. In this regard, it is important for all countries to improve and harmonise regulation and policy actions in order to allow the expansion

of renewable regionally. More particularly, it is suggested that the four Barents governments should agree on carrying out coordinated actions in the domain. This would include, for instance, exchanges of statistical data, joint research and development projects, exchanges of experiences between actors, and financial support for public institutions responsible for the promotion of energy efficiency and renewable use of energy (CENTEK AB 2010). Ultimately, increasing the use of renewable resources therefore requires increased regional cooperation at the technological, political, financial and legislative levels.

Alongside issues associated with energy production, more attention should be devoted to local consumption and related concerns. The cold climate, long distances and dependence on energy imports pose significant energy security risks for local communities whose livelihoods, cultural practices and survival depend on the reliability and affordability of electricity, heat and fuel. Measures need to be taken to improve the reliability and safety of existing energy infrastructure and to reduce dependencies on energy imports through a diversification of energy sources and, where possible, through the decentralisation of energy production. Improving energy efficiency and energy saving are also key components of the security of regional energy supplies, as are the measures to address the environmental impacts of energy consumption.

Finally, energy security must also take into account indigenous peoples' rights. The Barents governments, together with indigenous representatives, should consolidate indigenous rights to land and resources to avoid conflicts between energy production and indigenous way of life. At the same time, they should ensure that measure to promote renewable energy development, such as wind projects, do not adversely affect Sami livelihoods. Indigenous decision-making authority and participation in the development of energy project should therefore be improved and consolidated.

However, considering the instrumental and pervasive role of energy across all sectors and all aspects of societal life, a consideration of energy security solely in the explicit context of physical energy sources and production would remain fundamentally inadequate. While regional energy production poses certain threats and challenges within the region, it can also be perceived both as an important contributor to the regional economy and societal wellbeing. It can also be perceived as a source of revenue for states, whose transfer payments heavily support some parts of the northern regions (cf. AHDR 2004, 75; World Bank 2015; on the 'megatrend' of Arctic renewable energy cf. Rasmussen and Roto 2011, 149–168). As such, northern residents are not only dependent on energy itself, but in many instances also from the revenues derived by the states from energy production.

Furthermore, the linkages between fossil fuel production and consumption to climate change should not be overlooked. Climate change remains a major threat to northern cultures, communities and societies, and yet some parts of the Barents Region are heavily involved in and economically dependent on the hydrocarbon industry, which directly contributes to the acceleration of

climate change. This profound intertwinement between energy and broader society underlines the urgent need to reconsider the relationships between the global energy system and societal security as a broader whole.

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